

REMARKS

Claim 1, 4-27, 29-33, 35-65, and 67-84 are pending. Those pending claims are rejected under 35 U.S.C. §102(e) over the reference of Matsuura, et al. U.S. Patent No. 7,136,684.

Rejections under 35 U.S.C. §102(e)

Of the currently-pending claims, Claims 1-17, 28, 34, 59-64, 66-68, and 70-84 have been cancelled, and thus, the Rejections of those claims are now rendered moot. Of the remaining claims, Claims 18, 29, 45, and 58 are independent claims.

The claims are rejected as being anticipated under 35 U.S.C. §102(e) by the Matsuura, et al. reference. All the pending claims have been amended to further clarify those claims. The currently-amended are not anticipated by the Matsuura, et al. reference, because that reference fails to teach each and every element recited in the pending claims.

Specifically, the Matsuura, et al. reference discloses a headset and recording system for recording the utterances of a wearer, such as a doctor, for example. The system captures the utterances of a user wearing a headset and transmits them, such as for two-way radio communication, and then records those utterances in a memory unit. Whatever sound is captured by the headset and its microphones is transmitted automatically, and is recorded for future processing and use.

For example, medical information and discussions and input from medical care givers might be transmitted between doctor and patient, and then recorded, and then further utilized to determine the particular healthcare services provided, such as to a patient. The recorded speech may then be replayed and reviewed.

All noises and audio signals captured by the microphone are transmitted to be recorded. There are ways to limit the recording on the memory unit 81 of Matsuura, et al. and also to limit future reproduction of the stored recorded information utilizing switches and commands. However, as noted in Column 12, Lines 1-5, and again in Column 16, Lines 1-10, communication contents, such as those spoken into a headset are automatically stored in the memory unit, and thus, are automatically transmitted from the headset to the memory unit. That is, as noted in Column 16, while recordings of speech captured by the headset may be selectively turned on and off, the present invention presupposes that, when the headset is worn and the communications are started, the communication contents, such as conversation contents, are automatically recorded. In any case, the audio signals are transmitted by the headset.

Therefore, all the sounds captured by the headset are generally transmitted and may or may not be recorded.

The present invention is directed to a headset and an overall system and methodology, wherein a determination is made at the

headset of whether it would even be desirable to transmit the captured audio signals at all. As noted in the background of the present application, constant transmission of the audio signals captured by the headset will rapidly consume a small battery that is often utilized on a wireless headset. Furthermore, continuous RF transmissions proximate to a user's head might be undesirable. Furthermore, it might not be possible to have all audio processing and speech recognition processing tasks handled by the device or the terminal, that is remote from the headset. Accordingly, Claim 18 recites a headset that actually analyzes the audio signals, and makes a preliminary determination that those signals may include the user speech as opposed to extraneous noise. It would not be desirable to transmit extraneous noise, or all captured sounds, as is done in Matsuura, et al. Furthermore, the headset recited in Claim 18 has circuitry that is selective, and thus, selectively transmits representations of the audio signals when user speech, rather than noise, is detected, and does not transmit when user speech is not detected.

More specifically, Claim 18 recites speech processing circuitry configured for forming sampled representations of captured audio signals and analyzing those sampled representations of the audio signals to detect if the sampled representations include user speech as opposed to extraneous noise. The Matsuura, et al. reference does not teach, or even suggest, such a limitation or element, as recited. In fact,

as noted above, the Matsuura, et al. reference merely teaches a recording and playback system, wherein the specific recording of the playback might be controlled. Every noise or utterance that is captured by the headset is transmitted either to another headset or to another remote device, such as a computer. There is no speech determination made at the headset, nor is there any speech processing or analysis at the headset to separate the user actual speech from extraneous noise that is captured by the microphone. Rather, everything that is captured by the headset in Matsuura, et al. is transmitted by the headset.

The speech detection circuitry 36 referred to by the Examiner in the Office Action does nothing more than convert whatever signals are captured by the microphone 17 into digital signals. Those digital signals are then transmitted by radio communication module 11 to another headset, or to a system device, such as a computer. Those signals are transmitted unconditionally when spoken, and there is no analysis of those audio signals to detect if sampled representations of the audio signals include user speech, as opposed to extraneous noise. Noise and everything is transmitted in the Matsuura, et al. reference. This would defeat one of the purposes of the present invention.

Furthermore, because transmission is automatic and constant, Matsuura, et al. inherently cannot teach the element recited in Claim 18 directed to circuitry configured to selectively transmit sampled representations of the audio signal to a device when user speech, rather

than noise, is detected, and to not transmit to the device when user speech is not detected. In fact, as noted above, the Matsuura, et al. reference assumes constant transmission and constant recording, unless the recording is otherwise controlled. As noted in Column 8, Lines 1-10:

This system presupposes the basically constant recording, which is the recording is made automatically while the user wears the headset and carries out communications.

In fact, the Matsuura, et al. reference provides a two-way radio communication, such as between the doctor and a patient, which presupposes the constant transmission, and not the selective transmission provided by the present invention, wherein user speech is transmitted, but noise is not. Accordingly, Claim 18 is not anticipated under 35 U.S.C. §102(e) by the Matsuura, et al. reference, and thus, is an allowable form because that reference does not teach all of the elements recited in Claim 18. Claims 19-26 each depend from Claim 18, and thus, would be allowable for the same reasons. Furthermore, those dependent claims each recite a unique combination of elements, which is not taught by the cited art.

Claim 29 recites a system for wireless communication. Claim 29 has been amended in somewhat similar fashion as Claim 18. Claim 29 recites a device for processing speech signals and a headset for capturing audio signals to be processed. The headset is configured for initially forming sampled representations of the captured audio signals, and

processing the sampled representations, using speech detection circuitry to determine that the audio signals include user speech, as opposed to extraneous noise. As noted above, the Matsuura, et al. reference does not, in any way, teach a headset that is configured for processing sampled representations of captured audio signals to determine that the audio signals include user speech, as opposed to extraneous noise.

Furthermore, Claim 29 recites that the headset is further operable to selectively wirelessly transmit to the device the sampled representations of the captured signals when user speech, rather than noise, is detected, and to not transmit to the device when user speech is not detected.

Again, the Matsuura, et al. reference does not, in any way, teach a headset that is operable to selectively transmit when user speech, rather than noise, is detected, and to not transmit when user speech is not detected. Rather, whatever audio signals are captured in Matsuura, et al., noise or otherwise, the headsets will continuously transmit. Accordingly, Claim 29 is also not anticipated under 35 U.S.C. §102(e) by the Matsuura, et al. reference, and thus, is in an allowable form. Dependent Claims 30-33, and 35-44 each depend from Claim 29, and thus, would also be allowable as well. Furthermore, each of those dependent claims recites a unique combination of elements, which is not anticipated by the cited prior art references. Accordingly, those dependent claims are also in an allowable form.

Claim 45 is a method claim, which recites a method for wireless communication between a headset and a device. Claim 45 recites the step of processing captured audio signals and forming sampled representations of the audio signals, and using speech detection circuitry to analyze the sampled representations to determine if the audio signals include user speech, as opposed to extraneous noise. Claim 45 further recites the step of selectively transmitting the sampled representations when user speech, rather than noise, is detected, and not transmitting from the headset to the device when user speech is not detected. As discussed above, none of those process steps or limitations as set forth in the method Claim 45 are taught by Matsuura, et al. Accordingly, the Matsuura, et al. reference does not anticipate Claim 45 under 35 U.S.C. §102(e), and Claim 45 is in an allowable form over the cited references.

Claims 46-57 each depend from Claim 45, and would also be allowable for that reason. Furthermore, each of those dependent claims recites a unique combination of elements, which is not taught or anticipated by the cited references. Accordingly, those dependent claims are allowable.

Finally, Claim 58 recites a headset, which comprises a microphone system to capture audio signals, including user speech, and circuitry responsive to the output of the microphone system to form a sampled spectral transform of the captured audio signals. The Matsuura, et al. reference does not, in any way, teach a headset with circuitry that forms a

sampled spectral transform of the captured audio signals. As noted above, the speech detection unit 36, which is called out by the Examiner, merely digitizes, or converts, the signals generated by the microphone into digital signals. It does not form a sampled spectral transform to reduce the amount of microphone system output data, which is communicated to a remote device. Furthermore, Claim 58 recites that the circuitry is configured to selectively transmit the spectral transform of the audio signals to the device when user speech is detected, as opposed to extraneous noise, and to not transmit to the device when user speech is not detected. Such a headset as recited in Claim 58 is not anticipated by the Matsuura, et al. reference, because that reference does not teach, or even suggest, the elements set forth in Claim 58, as discussed further above. Accordingly, Claim 58 is allowable over the cited references. Dependent Claims 65 and 69 each depend from Claim 58, and thus, would be allowable for the same reason. Furthermore, those claims are allowable because they recite unique combinations of elements, which are not taught by the cited references.

Accordingly, Applicants submit that all the pending claims are in an allowable form, and requests and indication of their allowance at the Examiner's earliest convenience. If any issues remain in the case, which might be handled in an expedited fashion, such as through an Examiner's Amendment, the Examiner is encouraged to telephone Applicants' representative to discuss such issues.

Applicants do not believe that any fees are due in connection with this response. However, if any fees are necessary, the Commissioner may consider this to be a request for such and charge any necessary fees to deposit account 23-3000.

Respectfully submitted,

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